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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,665	01/25/2002	Michael P. Rigney	090936.0468	1004

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BAKER BOTTS L.L.P.
2001 ROSS AVENUE
SUITE 600
DALLAS, TX 75201-2980

EXAMINER

REKSTAD, ERICK J

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/056,665	Applicant(s) RIGNEY ET AL.	
	Examiner Erick Rekstad	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-11, 15 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 12-14, 16, 17 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a first action for application no. 10/056,665 in which claims 1-21 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,109,435 to Lo et al.

[claim 1]

As shown in Figure 4, Lo teaches the use of a median filter to obtain a moving object. The method includes the step of calculating a median pixel value (D) for each pixel in the image sequence, the image sequence comprising at least a first image (A) and a second image (B) (Figs. 1 and 2). The moving object is removed from the image sequence by using a median pixel frame (D). The median pixel frame (D) is then used in the further calculations (E) for determining a moving object using the well known subtraction method because it reduces noise (Col 5 lines 54-59, Col 7 Lines 3-34 and 41-47). Lo does not specifically teach the replacing of each pixel value in at least one image of the image sequence with the respective median value. It would have been obvious to one of ordinary skill in the art at the time of the invention that Lo teaches the replacing of each pixel of an image with the respective median value because the

method of Lo is a modified version of the conventional method for obtaining an object wherein the use of a previous frame is replaced with the use of a median frame, as this reduces noise.

[claim 2]

As shown in Figure 3, once the object image has been determined (16) it is sent to subtractor (18). Lo does not teach storing the image in the unit for processing. It is well known in the art to provide a buffer in order to store needed data for calculations (Official Notice). It would have been obvious to one of ordinary skill in the art at the time of the invention to store the object image in the median filter unit in order to provide a reference for use by the subtractor unit.

[claims 3 and 4]

As shown in Figure 4, Lo teaches the comparing of the median frame (D) with an additional image (C) in order to detect differences in the images (E). The findings are then relayed to an operator (Col 6 Line 50-Col 7 line 2).

Claims 5, 6, 10, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,063,603 to Burt in view of Lo.

[claims 5 and 6]

Burt teaches a method of using video images to monitor incidents in a region of interest using the apparatus of Figures 1, 3 and 4.

The method includes the computing a reference image from a set of images with moving objects removed (Col 7 Lines 8-49). The method then acquires an image to be analyzed and computes a temporal difference image by comparing the image to be

analyzed with the reference image (Col 7 Line 50-Col 8 Line 21). The method repeats the step of computing a temporal difference image to obtain a set of temporal difference images in order to calculate, detect, and group pixels into motion objects (Col 8 Lines 44-65, Col 12 Lines 9-37, Col 15 Lines 51-62, Fig. 4).

The motion objects are then classified by extracting features and comparing the features of the objects with the motion model (Col 8 Line 44-Col 9 Line 22, Col 10 Lines 6-52). Burt teaches the reference frame obtained by multiple images where the moving objects to be detected are physically removed from the region of interest.

As shown in Figure 4, Lo teaches the use of a median filter to obtain a moving object. The method includes the step of calculating a median pixel value (D) for each pixel in the image sequence, the image sequence comprising at least a first image (A) and a second image (B). The moving object is removed from the image sequence by using a median pixel frame (D). The median pixel frame (D) is then used in the further calculations (E) for determining a moving object using the well known subtraction method because it reduces noise (Col 5 lines 54-59, Col 7 Lines 3-34 and 41-47). It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the reference frame method of Burt with the method of Lo as the use of a median frame reduces noise.

[claim 10]

Burt teaches the subtraction of the reference image pixels from the image to be analyzed in order to compute the temporal difference image (Col 7 Lines 50-68).

[claims 18 and 19]

Burt teaches the classifying is based on spatial features (Col 11 Lines 28-38, Col 12 Lines 33-37). Further, the classifying is based on moving objects (Col 11 Lines 39-45).

[claim 20]

Burt teaches the classifying of the moving objects as a generic human (not anticipated) or as a specific person (anticipated) (Col 14 Lines 51-62).

Claims 9, 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over being unpatentable over Burt and Lo as applied to claim 5 above, and further in view of US Patent 4,692,806 to Anderson et al.

[9 and 11]

Burt and Lo teach the method of claim 5 as shown above. Burt teaches the subtraction of the reference image pixels from the image to be analyzed in order to compute the temporal difference image (Col 7 Lines 50-68). Burt and Lo do not teach the subtraction of the image to be analyzed from the reference image. Burt and Lo further do not teach the calculating of the absolute value of the difference.

Anderson teaches the detection of a moving object using a subtraction method and absolute value calculator in order provide a means to detect a spatial position containing significant level value with reduced computation (Col 11 Lines 7-32, Col 13 Lines 29-48, Fig. 9a). It is well known in the art that the use of an absolute value calculator allows for either image to be subtracted from the other image as the only information used is the level not the polarity (Official Notice). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the

method of Burt and Lo with the method of Anderson in order to reduce the computations used to obtain spatial positions of interest.

[claim 15]

Anderson further shows the detection of a moving object is based on comparing the level value obtained by the absolute value calculator with several threshold values (Col 12 Lines 3-55 and Col 13 Lines 4-48).

Allowable Subject Matter

Claims 7, 8, 12-14, 16-17 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,512,942 to Otsuki.

US Patent 5,034,986 to Karmann et al.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 703-305-5543. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 703-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erick Rekstad
Examiner
AU 2613
(703) 305-5543
erick.rekstad@uspto.gov


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600